Engine Model: **Briggs & Stratton Classic, 450 and 500 Series**

SELF-HELP PROBLEM SOLVING and MAINTENANCE for PETROL LAWNMOWERS

The Briggs & Stratton Classic, 450 and 500 Series engines are fitted to many mowers including the following recent products:

- **420 HP**
- **460 R PD**
- **HP470**
- **T4604S**
- **GL480SP**
- **460 HP**
- **PWR 400**
- **SP470**
- **T4604RS**
- **460 PD**
- **SP530**
- **T4204 and 4204S**
- **T5105S**

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If, after reading this guide, you feel you are either unsure of what is required, or that you do not have the correct tools to undertake a job yourself, please contact:

- **Our Helpline service, telephone 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm), or**
- **Our local ServiceLink centre who can undertake any remedial work requested (work that is not covered by the guarantee will be chargeable)**

Your local ServiceLink centre can be found at www.servicelink.org.uk

Engine Model: Briggs & Stratton Classic, 450 and 500 Series

1 Safety Precautions

Your lawnmower should be used with due care and attention. Symbols have therefore been placed on various parts of the machine to remind you of the main precautions to be taken. Their meaning is explained below. You are also asked to read the safety precautions listed below.

1. **Warning:** Read the instruction manual before using the machine.

2. **Beware of thrown objects:** Keep other people at a safe distance whilst working.

3. **Warning:** Disconnect the spark plug cap before carrying out any repairs or maintenance.

4. **Beware of cutting:** Moving blades. Do not put hands or feet near the blades.

The following safety precautions must be observed at all times. Please read them very carefully.

TRAINING:

1. **Read the instructions carefully.** Get familiar with the controls and proper use of the equipment. Learn how to stop the engine quickly.
2. **Only use the lawnmower for the purpose for which it was designed, i.e. for cutting and collecting grass.** Any other use can be hazardous, causing damage to the machine. Examples of improper use may include, but are not limited to:
    - Transport of people, children or animals on the machine;
    - Being transported by the machine;
    - Using the machine to tow or push loads;
    - Using the machine for leaf or debris collection;
    - Using the machine to trim hedges, or for cutting vegetation other than grass;
    - Use of the machine by more than one person;
    - Using the blade on surfaces other than grass.
3. Never allow children or people unfamiliar with these instructions to use the lawnmower. Local regulations may restrict the age of the operator.
4. **Never use the lawnmower:**
    - When people, especially children, or pets are nearby;
    - If the operator has taken medicine or substances that can affect his ability to react and concentrate.
5. Remember that the operator or user is responsible for accidents or hazards occurring to other people or their property.
6. Never put your hands, feet or any implement under the cutter deck or inside the rear discharge chute. The cutter blade will continue to rotate for some time after

the engine is switched off.

PREPARATION:

1. **While mowing, always wear sturdy footwear and long trousers. Do not operate the equipment when bare foot or wearing open sandals. Avoid loose clothing that may snag on moving parts.**
2. Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine or damage the cutter assembly and the engine (stones, sticks, metal wire, bones, etc).
3. **WARNING: DANGER! Engine fuel is highly inflammable:**
    - Store fuel in containers specifically designed for this purpose;
    - **Refuel using a funnel and outdoors only – do not smoke while refuelling or whenever handling the fuel;**
    - Add fuel before starting the engine – never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot;
    - If fuel is spilled, do not attempt to start the engine but move the machine away from the area of the spillage and avoid creating any source of ignition until the fuel has evaporated and the vapour has dispersed;
    - Replace all fuel tanks' and retainers' caps securely.
4. Substitute faulty silencers. Never use the machine without a silencer.
5. **Before use, always inspect the machine, especially the condition of the blades, and check that the screws and cutting assembly are not worn or damaged.** Replace worn or damaged blades and screws in sets to preserve balance.
6. Before mowing, attach the discharge opening guards (grass-catcher or stone-guard).

OPERATION:

1. Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
2. Mow only in daylight or good artificial light.
3. If possible avoid operating the equipment on wet grass.
4. Always be sure of your footing on slopes.
5. Walk, never run and do not allow yourself to be pulled along by the lawnmower.
6. Mow across the face of slopes, never up and down.
7. Exercise extreme caution when changing direction on slopes.
8. Do not mow on slopes of more than 20 degrees.
9. Exercise extreme caution when pulling the lawnmower towards you.
10. Stop the blade if the lawnmower has to be tilted for transportation when crossing surfaces other than grass, and when transporting the lawnmower to and from the area to be mown.
11. Never operate the lawnmower with defective guards, or without safety devices, such as the stone-guard and/or grass-catcher, in place.
12. Do not change the engine governor settings or over-rev the engine.
13. On power-driven models, disengage the drive clutch before starting the engine.
14. Start the engine carefully, following the instructions and keeping feet well away from the blade.
15. Do not tilt the lawnmower when starting the engine. Start the engine on a flat surface that is free of obstacles and tall grass.
16. Do not put your hands or feet near or under rotating parts. Keep clear of the

discharge opening at all times.

17. Never pick up or carry a lawnmower while the engine is running.

18. Stop the engine and disconnect the sparkplug wire:

- Before carrying out any work underneath the cutting deck or before unclogging the chute;
- Before checking, cleaning or working on the lawnmower;
- After striking a foreign object – inspect the lawnmower for damage and make repairs before restarting and operating the lawnmower;
- If the lawnmower begins to abnormally vibrate (immediately look for the cause of the vibrations and take for necessary controls to a specialist centre).

19. Stop the engine:

- Whenever you leave the lawnmower unattended – remove the key from models with electric starters;
- Before refuelling;
- Every time you remove or replace the grass-catcher;
- Before adjusting the grass cutting height.

20. Reduce the throttle before turning off the engine and (if fitted) turn the fuel off when you have finished mowing following the instructions in the engine handbook.

21. When mowing, always keep a safe distance from the rotating blade. The distance is the length of the handle.

MAINTENANCE AND STORAGE:

1. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition. Regular maintenance is essential for safety and performance.

2. Never store the equipment with fuel in the tank inside a building where vapour may reach a flame or a spark or a source of extreme heat.

3. Allow the engine to cool before storing in an enclosed space.

4. **To reduce the fire hazard, keep the engine, exhaust silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease.** Do not leave containers with grass cuttings in rooms.

5. Check the stone-guard and the grass-catcher frequently for wear and deterioration.

6. If the fuel tank has to be drained, this should be done outdoors and when the engine is cool.

7. Wear strong work gloves when removing and reassembling the blade.

8. **Keep the blade balanced during sharpening.** All operations on the blade (dismantling, sharpening, remounting balancing, and/or replacing) require a certain familiarity and special tools. For safety reasons, these jobs are best carried out at a specialized centred.

9. **For safety reasons, never use the machine when it has worn or damaged parts. Parts are to be replaced and not repaired. Use genuine spare parts. Parts that are not of the same quality can damage the equipment and impair your safety.**

TRANSPORTATION AND HANDLING:

1. Whenever the machine is to be handled, raised, transported or tilted you must:

- Wear strong working gloves;

- Grasp the machine at the points that offer a safe grip, taking account of the weight and its distribution;
- Use an appropriate number of people for the weight of the machine and the characteristics of the vehicle or the place where it has to be placed or collected.

2. During transport, fasten the machine securely with ropes or chains.

2 Fuel, Oil, Air Filter and Spark Plug Requirements

FUEL – these are 4-stroke petrol engines. The correct fuel is ordinary unleaded petrol.

Do not overfill the fuel tank. Fill the fuel tank to approximately 1" below the top of the fuel filler neck to allow for fuel expansion.

OIL – the correct oil to use is Mountfield MX855 oil, or a 4-stroke SAE 30 or 10W-30 multi-viscosity oil. DO NOT mix oil with the fuel. The dipstick shows the minimum and maximum levels. The Briggs & Stratton 450 Series engine holds 0.5 litre of oil, the other engines hold 0.6 litre of oil. NB Wipe the dipstick, then fully replace it by screwing it in, now withdraw it to gain an accurate reading.

The use of multi-viscosity oils in hot temperatures will result in a higher than normal oil consumption. It is important, therefore, to check the oil level more frequently.

Do not mix oils of different brands and features.

Do not over-fill with oil. Over-filling may cause smoking or contamination of the spark plug and/or air filter.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

AIR FILTER – these engines use a cleanable (warm soapy water) sponge air filter.

SPARK PLUG – the following sparkplugs are the correct specification:

Champion: LM19 or QJ19LM

The spark plug gap should be 0.76mm or 0.03" ($^{30}/_{1000}$)

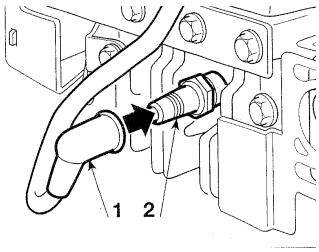
3 Routine Engine Maintenance

Regular and careful maintenance is essential to preserve the original performance and safety level of the engine. Always store the mower in a dry place.

TESTING FOR A SPARK (this job requires 2 people)

1. Stand the machine on a firm surface and set the height adjusters to the lowest setting for added safety.
2. Remove the H.T. lead (1 in the diagram) – a push/pull fit.
3. Unscrew the spark plug (2 in the diagram) with a genuine spark plug spanner.
4. Fit the plug back into the end of the HT Cap and rest it against the engine block (hold only the black insulation lead).
5. The second person can now hold in the Operator Presence Control (OPC) and pull the engine cord. You should see a spark jump across the end of the plug.

H.T. Lead (spark plug cap) and Spark Plug



Spark Plug:
Champion: LM19 or QJ19LM

The spark plug gap for all these Briggs & Stratton engines should be 0.76mm or 0.03" ($^{30}/_{1000}$).

DRAINING FUEL:

We advise that the engine should be drained of fuel before storage for more than 30 days. One should only buy fuel in quantities that can be used up within a few weeks.

When emptying the fuel from the engine place the mower on a solid surface, or patch of gravel or similar (fuel spillage may kill the lawn or stain a patio):

i. Remove the grassbox, remove the fuel cap and tip the mower BACKWARDS to drain as much of the fuel as possible.
ii. For the fuel which remains in the tank, carefully dip a clean rag into the fuel tank (do not force it in as you could damage the fuel pick up pipe). Allow the fuel to soak into the rag to remove it. Repeat this until the old fuel is removed. Arrange safe disposal of fuel-soaked rags.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

Engine Model: Briggs & Stratton Classic, 450 and 500 Series

CHANGING ENGINE OIL

Check the engine oil before each use.

These small four stroke engines hold up to 0.6 litres of oil (1.2 Pints). Any oil shortages can cause premature wear or serious damage to the engine. So too will using the incorrect grade of oil. NB Wipe the dipstick, then fully replace/withdraw it to gain an accurate reading.

Mountfield MX855 four stroke oil is readily available through either the B&Q chain of retailers or through our own comprehensive dealer network.

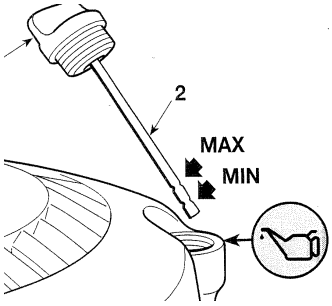
If you are unable to obtain the correct oil, use either an SAE30 or a 10W-30 grade of oil. These oils are generally only found in the larger DIY stores in the gardening department or at a garden centre or lawnmower specialist

The oil should be changed on all new engines after approximately 5 hours of operation. It should then be changed every 50 hours of operation, or once a season.

Before changing the oil, run the engine for a few minutes to warm the engine oil. This allows it to run more freely and to carry out any sediment with it.

Engine Oil

- **Mountfield MX855**
- **SAE30 lawnmower oil**
- **10W-30 oil**



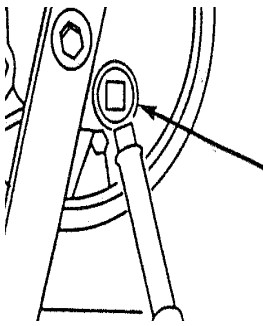
Oil capacity is 0.5 litre for 450 Series engines, other engines 0.6 litre

Mountfield MX855 four stroke oil is readily available through either the B&Q chain or through our own dealer network.

Option 1….this is the more convenient method for these engines

To drain oil from the oil fill tube, run the engine to warm the oil. Remove the H.T. lead and grass catcher assembly. Undo the oil fill dip stick and make sure a suitable tray is in place to catch the oil. Tilt the machine **backwards onto the rear left wheel (the wheel closest to the oil fill)** so that three wheels will be clear of the ground. As the angle increases the oil will pour out of the fill and into the tray. Once completed, stand the machine on level ground and refill in accordance with the operating instructions.

Option 2….these engines have a square recessed drain bolt beneath the cutter deck which a $^{3}/_{8}$" square socket extension bar fits. Drain bolts are beside the main crankshaft (blade shaft). On power drive machines a black plastic guard protects the belt. Inside is a small recess with the oil drain bolt at the top. Turn the drain bolt anti-clockwise to release.



Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

Engine Model: Briggs & Stratton Classic, 450 and 500 Series

ENGINE MANUFACTURER'S RECOMMENDATIONS:

As a guide, the information below has been copied from the engine manufacturer's user manual:

Classic and Sprint engines:

Maintenance Schedule

Follow the hourly or calendar intervals, whichever occur first. More frequent service is required when operating in adverse conditions noted below.

First 5 Hours

- Change oil

Every 5 hours or daily

- Check oil level
- Clean finger guard
- Clean around muffler

Every 25 hours or every season

- Change oil if operating under heavy load or high ambient temperature
- Service air cleaner Oil-Foam® element*

Every 50 hours or every season

- Change oil
- Inspect spark arrester, if equipped.

Every 100 hours or every season

- Clean cooling system*
- Replace spark plug

* *Clean more often under dusty conditions, or when airborne debris is present or after prolonged operation cutting tall, dry grass.*

NB: Please refer to the engine manufacturer's manual for specific information on all engines.

450 Series Engines:

Task *Perform task at hourly or calendar interval, whichever comes first.*	Every 8 Hours or Daily	25 Hours or Every Season	50 Hours or Every Season	100 Hours or Every Season	100-300 Hours
Check Oil Level					
Change Oil *					
Service Foam Air Cleaner Element **					
Replace Spark Plug					
Inspect Spark Arrester (if equipped)					
Clean Air Cooling System **					
Clean Combustion Chamber					

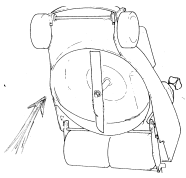
* **Change oil after first 5 to 8 hours of use**, then every 50 hours or every season. Change oil every 25 hours when operating the engine under heavy load or in high temperatures.

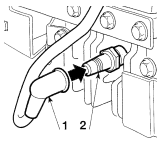
** Clean more often under dusty conditions or when airborne debris is present. Replace air cleaner parts, if very dirty.

4 Starting the Engine

The engine oil should be checked before each use. Check there is sufficient petrol in the fuel tank, and that it is clean and fresh. Old, stale fuel may cause poor starting. Drain stale fuel from the tank and replace with fresh petrol.

1. Ensure the machine is situated on a firm level surface (path, patio or short grass). **Before checking the underside, make sure to remove the HT cap (spark plug cap)**. Check the underside of the machine is clear from old lawn debris. If you have to tilt the mower, do this backwards only. First remove the grass catcher, then lift the front wheels until the handles reach the ground at the rear.

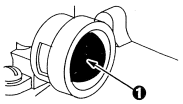




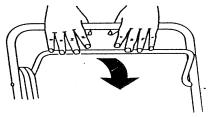
2. Check the H.T. lead (1 in the diagram) is correctly fitted to the spark plug.

3. ***On 400 Series engines only***, set the throttle lever to the FAST position.

4. Push the primer bulb (1) at least three times. When starting from cold (or for new engines) it may be necessary to prime the engine eight to ten times continuously to bleed the fuel system of any air pockets.



5. Check the Operator Presence Control (OPC) lever is held against the handle (it may be marked STOP, or it may be a red handle at the left side of the main handle bar) when starting and using the mower.



QUICK TROUBLESHOOTING GUIDE:

Problem:	***Likely Cause:***	***Solution:***
Engine is difficult to start	• Spark plug disconnected	• Check the spark plug cap is firmly fitted on the spark plug (see A)
	• Dirty spark plug or incorrect gap	• Check the spark plug (see A)
	• No fuel	• Check and top up (see B)
	• Stale fuel or build-ups in fuel tank	• Drain old fuel, re-fill with fresh fuel (see B)
	• OPC Cable has stretched	• Adjust or replace (see C)

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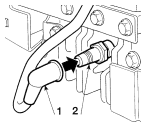
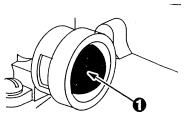
A: Spark Plug:



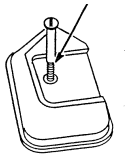
Check the H.T. lead (1 in the diagram) is correctly fitted to the spark plug.

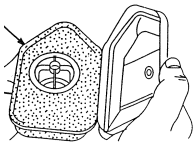
To check the state of the plug, unscrew the spark plug (2 in the diagram) with a genuine spark plug spanner. Oil can be cleaned from it (the result of the machine having been overfilled with oil or tipped incorrectly) with a clean rag.

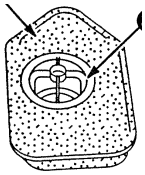
A wire brush or emery paper can be used to clean any carbon deposit from the plug.



Whilst the plug is removed, prime the engine 10 times and pull the recoil rope 6 times. This will rinse and eject any residue of oil from within the cylinder head.







Now it would be prudent to check the air filter:

1. The filter is above the primer bulb. It is secured with a long silver screw (flat bladed screwdriver required). Remove this screw and gently wriggle the air filter cartridge upwards and clear from the engine (you do not need to remove the top plastic engine cover).
2. Split the two halves of the air filter unit and remove the foam from within. If very oily, squeeze the sponge into some kitchen roll to remove any excess oil. Then, clean the sponge in hot soapy water, Dry it thoroughly, then work one tablespoon of oil into the sponge so that it is sticky to the touch. Re-install the air filter.
3. The air filter should be checked and maintained once a month during the cutting season (especially if the weather is unusually warm) because the foam could dry out.

If you wish to test for a spark (2 people required):

1. Stand the machine on a firm surface and set the height adjusters to the lowest setting for added safety.
2. Remove the H.T. lead – a push fit.
3. Unscrew the spark plug with a genuine spark plug spanner.
4. Fit the plug back into the end of the H.T. lead and rest it against the engine block (hold only the black insulation lead).
5. The second person can now hold in the Operator Presence Control and pull the engine cord. You should see a spark jump across the end of the plug.

The spark plug gap should be 0.76mm or 0.03" ($^{30}/_{1000}$).

Replace the plug and ensure the H.T. lead is correctly fitted to the spark plug.

NOTE: If there is no spark, change the plug. If there is still no spark refer to a service dealer because the coil may be faulty.

B: Fuel:

Ensure there is at least a third of a tank of fresh fuel, and the mower is standing on level ground. The fuel feed pipe only goes down $^2/_3$ of the way into the fuel to avoid picking up sediment.

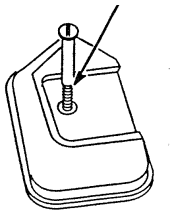
Push the primer bulb at least three times. You should hear petrol squirting into the engine and feel some resistance to your finger as you press the primer button.

NOTE: *Over the winter period it sometimes happens that mice chew a hole in the rubber primer bulb! Your mower will not start in these circumstances. See Section 6, sub-section B - Replacing the Primer Bulb, or refer to a service dealer.*

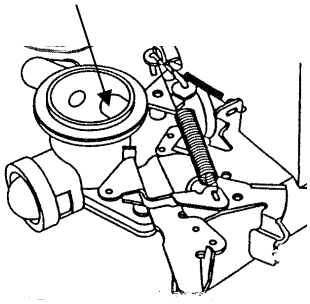
When starting from cold (or for new engines) it may be necessary to prime the engine eight to ten times continuously to bleed the fuel system of any air pockets.

If you do not hear petrol squirting into the engine, or feel no resistance to your finger as you press the primer button, check there is at least a third of a tank of fresh petrol. Again prime the engine. If there is still no evidence of petrol being fed to the engine there may be an air lock.

Remove the air filter assembly from above the primer bulb. It is held by a long screw (flat bladed screwdriver required). Once the screw has been removed, lift the air filter assembly about 5mm and draw it from underneath the engine cover.



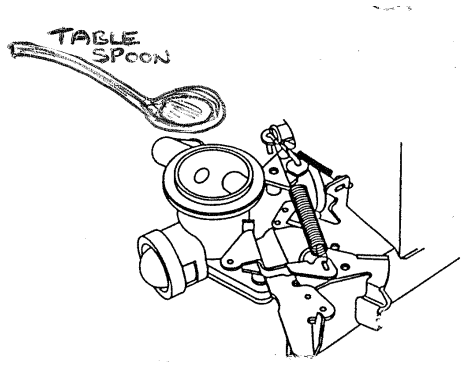
VENTURY VIEW POINT



Look down into the carburettor ventury (the aperture that is revealed once the filter is removed, about 40mm in diameter). Press the primer bulb several times to check that a jet of fuel shoots across the ventury from behind the primer through to the engine cylinder.

If no fuel shoots across it will indicate that either there is insufficient fuel in the tank or you have an air lock.

Check the level of fuel in the tank and top up if necessary. Then again check to see if the jet of fuel shoots across the ventury. If it doesn't, carry out the following instructions:



Add a tablespoon of fuel directly into the carburettor ventury.

Without priming the engine again
Immediately try to start the machine.

The engine should start because you have forced fuel through into the cylinder. Once started allow the engine to run for about 30 seconds. Then stop the engine and refit the air filter assembly.

Never cut grass with the air filter assembly removed

Stale fuel or build-ups in the fuel tank are most common when the mower has been stored for a period of time (e.g. over the winter period)

We advise that the engine should be drained of fuel before storage for more than 30 days. One should only buy fuel in quantities that can be used up within a few weeks.

When emptying the fuel from the engine place the mower on a solid surface, or patch of gravel or similar (fuel spillage may kill the lawn or stain a patio):

iii. Remove the grassbox, remove the fuel cap and tip the mower BACKWARDS to drain as much of the fuel as possible.
iv. For the fuel which remains in the tank, carefully dip a clean rag into the fuel tank (do not force it in as you could damage the fuel pick up pipe). Allow the fuel to soak into the rag remove it. Repeat this until the old fuel is removed. Arrange safe disposal of fuel-soaked rags.
v. Fill the tank **with new fresh unleaded fuel.**

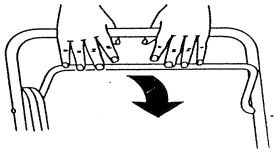
Remove the spark plug from the engine and clean it. Whilst the plug is removed, prime the engine 10 times, hold the OPC lever in to the main handle and pull the recoil rope 6 times. This will eject any residue of fuel from within the cylinder head.

Refit the spark plug and then only prime the engine once before attempting to start the engine.

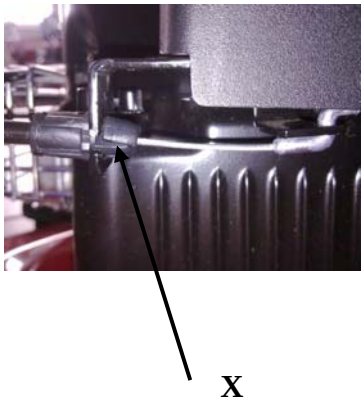
NOTE: Fuel that has become contaminated will prevent these engines from starting. Contamination can include water from either condensation or from water that has somehow got into the storage tanks at the garage. A service dealer may be required to clear this.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

C: Adjusting the Operator Presence Control cable (450 and 500 Series engines only):



1. With time the OPC cable may stretch and not fully engage switch which allows the electrical feed to the spark plug. This is the cable which runs down from the top bar on the main handle.



2. Follow the OPC cable down to the back of the engine where the lever moves when the OPC is depressed. Come BACKWARDS along the bare metal cable some 8cms to where the metal bracket (X) grips the black plastic cable covering (directly below the fuel filler).

3. Release the plastic cable cover by compressing the 2 lugs inwards on the end of the plastic cable cover that are splayed out and hold it in place. Feed the black plastic cable cover BACKWARDS through the bracket to release the cable.

4. Disconnect the Z-end of the OPC cable from the lever which moved when you held the OPC bar back to the handle in Step 2 above.

5. Thread a thin washer onto the cable, over the Z-end of the OPC cable, and then over the 2 lugs which fasten the cable into the bracket.

6. Re-connect the Z-end of the cable into the lever and then replace the cable in the bracket. This will now compensate for stretch in the cable. You should now be able to start the mower in the normal way.

Your local ServiceLink centre can be found at www.servicelink.org.uk

Engine Model: **Briggs & Stratton Classic, 450 and 500 Series**

5 Engine Starts and Smokes Heavily

QUICK TROUBLESHOOTING GUIDE:

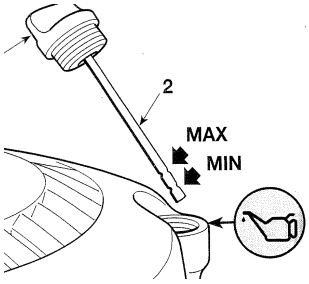
Problem:	***Likely Cause:***	***Solution:***
White, blue or grey smoke from exhaust	• Over-filled with oil • Mower has been tipped incorrectly	• Reduce oil (see A) • Remove oil from cylinder (see B)
Oil coming from exhaust	• Over-filled with oil • Mower has been tipped incorrectly	• Reduce oil (see A) • Remove oil from cylinder (see B)

A: Do not overfill the engine with oil.

These 4-stroke engines hold up to 0.6 litres of oil (1.2 Pints). NB Wipe the dipstick, then fully replace/withdraw it to gain an accurate reading.

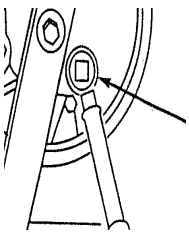
Easiest way to drain excess oil (from oil-fill tube):
Run the engine a few minutes to warm the oil. Remove the H.T. lead and grass catcher assembly. Undo the oil fill dip stick and make sure a suitable tray is in place to catch the oil. Tilt the machine **backwards onto the rear left wheel closest to the oil fill** (three wheels will be clear of the ground). As the angle increases the oil will pour from the fill and into the tray. Drain excess oil, and make sure the level of oil in the tank does not show above the MAX mark on the dipstick.

Engine Oil:
- **Mountfield MX855**
- **SAE30 lawnmower oil**
- **10W-30 oil**



Oil capacity is 0.5 litre for 450 Series engines, other engines 0.6 litre
Mountfield MX855 four stroke oil is readily available through either the B&Q chain or through our own dealer network.

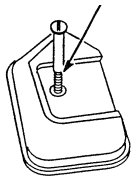
OPTION 2: These engines have a square recessed drain bolt beneath the cutter deck which a $^{3}/_{8}$" square socket extension bar fits. The drain bolt is beside the main crankshaft (blade shaft). On power drive machines a black plastic guard protects the belt. Inside is a small recess with the oil drain bolt at the top. Turn the drain bolt anti-clockwise to release.



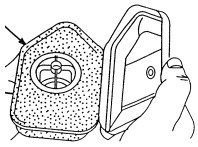
Now follow the instructions in B below.

Please dispose of old fuel and used engine oil in a manner that is compatible with the environment

B: This is a general indication that the mower has been over-filled with oil, or tipped incorrectly (perhaps inadvertently). It can be resolved without the intervention of a service dealer.



Remove the air filter assembly from above the primer bulb. It is held by a long screw (flat bladed screwdriver required). Once the screw has been removed, lift the air filter assembly about 5mm and draw it from underneath the engine cover.



Split the two halves of the air filter unit and remove the foam from within. If very oily, squeeze the sponge into some kitchen roll to remove any excess oil. Then, clean the sponge in hot soapy water, Dry it thoroughly, then work one tablespoon of oil into the sponge so that it is sticky to the touch. Re-install the air filter.

Never cut grass with the air filter assembly removed

Remove and clean the spark plug completely. ONLY USE A GENUINE SPARKPLUG SPANNER.

With the sparkplug removed, prime the engine with the primer bulb 10 times, hold in the OPC and pull the engine over with the pull cord 6 times to eject any oil from the spark plug hole.

Replace the plug and start the engine in the normal way. The engine will smoke quite badly at first, but allow the engine to continue running for at least ten minutes. The smoke will begin to dissipate. Let the mower run until the smoke has gone.

NB During subsequent uses (for maybe a further 8-10 hours) the mower may smoke a little. Droplets of oil may come from the exhaust onto the deck as the oil is cleared from the cylinder. Simply wipe these away with a rag.

The correct way to tip your mower is BACKWARDS.

6 Engine Cutting Out or Running Unevenly

QUICK TROUBLESHOOTING GUIDE:

Problem:	***Likely Cause:***	***Solution:***
Engine runs briefly and stops	• Engine is starting with the petrol from pressing the primer bulb, but diaphragm not engaging and feeding petrol	• Change diaphragm (refer to a dealer or see A for instructions)
Engine revs are very low	• Air filter needs cleaning or the diaphragm is not feeding the petrol evenly	• Clean the air filter, and (if necessary) change diaphragm (refer to a dealer or see A for instructions)
Engine hunts continuously	• Diaphragm is not feeding the petrol evenly	• Change diaphragm (refer to a dealer or see A for instructions)
Diaphragm has been changed, but with no improvement	• Poor seal (not air-tight or dirt trapped) between the petrol tank and the diaphragm	• Repeat the work ensuring the tank is thoroughly clean where the diaphragm sits. Otherwise, refer to a service dealer.
Primer bulb has a hole in it	• Mice sometimes chew a hole in the rubber primer bulb over the winter period	• Replace the primer bulb (see B or refer to a service dealer.

A: Changing the Diaphragm:

These engines do not have a petrol pump. They have a **DIAPHRAGM**. When the diaphragm is ready to be replaced (typically after some 18 months' use) it leaks air, and feeds petrol unevenly to the engine causing it to "hunt" (i.e. run unevenly in surges). This is accompanied by black smoke (excess petrol being burned off) and an increase in petrol consumption.

The diaphragm can be replaced by an authorised Briggs & Stratton dealer. This is a chargeable job and NOT a warranty repair.

If a user has a mechanical or practical nature they can buy the part from the dealer and fit it themselves. If doing this work oneself it is essential to:

- Work cleanly and ensure no dirt is introduced into the work, and
- Not stretch or distort the springs in the throttle mechanism behind the air cleaner

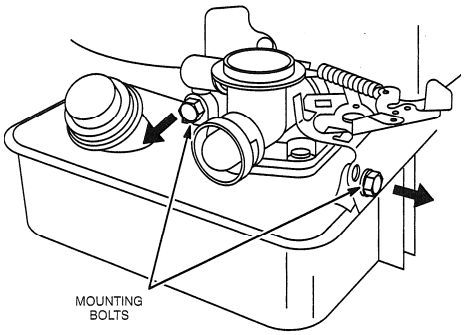
The task has 4 separate stages:

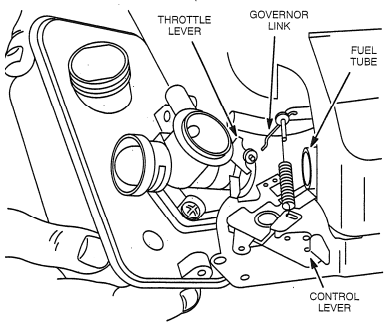
1. **Remove the carburettor and fuel tank.**
2. **Separate the carburettor and fuel tank.**
3. **Replace the diaphragm and gasket.**
4. **Re-assembly.**

REMOVE THE CARBURETTOR AND FUEL TANK

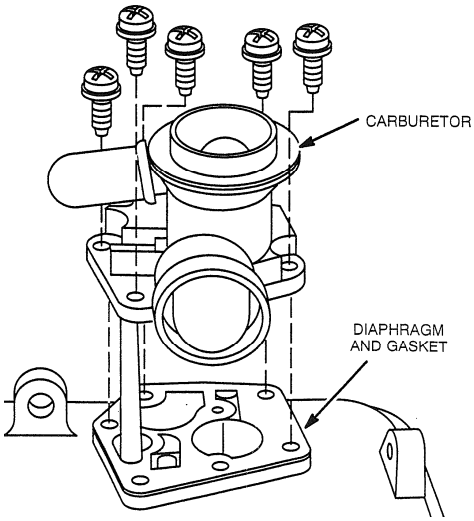
1. Remove the carburettor and fuel tank assembly mounting bolts.
2. Slip the carburettor and fuel tank assembly off the end of the fuel intake tube.
3. Turn the fuel tank assembly to free the throttle link from throttle lever.

This stage provides a good opportunity to empty any sediment from the tank and to rinse it with petrol.





SEPARATE THE CARBURETTOR AND FUEL TANK



1. Remove the 5 screws securing the carburettor to the tank.
2. Remove the carburettor from the tank.
3. Remove the diaphragm and gasket from the tank.

REPLACE THE DIAPHRAGM AND GASKET

1. Place the new diaphragm on the tank top, then place the new gasket on top of the diaphragm. NOTE: It is worthwhile cleaning around the top of the tank with a clean cloth with some petrol on it to remove any grease or dirt so that an airtight seal is achieved with the diaphragm.
2. Lower the carburettor assembly down onto the gasket and diaphragm.
3. Replace the 5 screws and tighten them evenly.

RE-ASSEMBLY

Reassemble the tank assembly in the reverse manner to the disassembly described above.

B: Replacing the Primer Bulb:

The red rubber button may perish, or mice may chew holes in this part when the machine is stored over winter in a shed. The item is considered as a consumable item, and therefore not covered by warranty.

The part number (including its retaining clip) is 694394. The item is called a Carburettor Primer.

A service dealer considers this as a chargeable job and NOT a warranty repair.

If you are of a mechanical or practical nature you can buy the part from a local parts/service dealer.

Using the instructions and diagrams in A above, and remembering to work cleanly and not introduce dirt when carrying out this procedure:

1. **Remove the carburettor and fuel tank, and separate the carburettor and fuel tank as described above.**
2. **Slide the jet screen off the carburettor body. Please note, the fixed main jet is not a serviceable part.**
3. **Press in from both sides of the primer bulb cavity to release the retainer tabs.**
4. **Prise the retainer out and remove the primer bulb.**
5. **Replace the primer button by reversing the above instructions, and then reassemble.**

IMPORTANT: Do not stretch, bend or compress the primer spring.

7 Pull Cord Not Pulling or Snatching Back

QUICK TROUBLESHOOTING GUIDE:

Problem:	***Likely Cause:***	***Solution:***
Pull cord will not pull	• OPC not engaged • Grass caught between the blade and the deck • "Hydraulic lock"	• Hold OPC in (see A) • Remove grass from the blade (see B) • Remove oil from cylinder (see C)
Cord snatches back	• Blade rotation is impeded • Blade is unbalanced or damaged	• Free blade (See D) • (See E) and refer to dealer

A: The OPC lever must be held fully in to the main handle before the pull cord can be pulled and the engine can run. If the OPC lever is fully engaged and the cord will only pull out 4" or so, see **C** below.

B: Remove the grassbox. Now remove the HT lead (spark plug cap) for safety reasons, then lift the front wheels until the handles reach the ground at the rear. Free any grass caught between the blade and the deck. Stand the mower back on the ground on all four wheels, replace the cap on the sparkplug and start in the normal way.

C: Hydraulic Lock occurs if the mower has been tilted forwards and oil settles between the piston and cylinder head, sticking the piston to the cylinder roof.

Remove and clean the spark plug completely. ONLY USE A GENUINE SPARKPLUG SPANNER. ***Do not replace the plug yet.***

If the cord will not pull free, tilt the mower BACKWARDS, reach underneath and turn the blade (in either direction) to free it. Clear any grass blockage.

With the sparkplug removed, prime the engine 6 times with the primer button, hold in the OPC lever and pull the engine over with the pull cord 6 times to eject any oil from the spark plug hole.

Replace the plug and start the engine in the normal way. The engine might smoke quite badly at first, but allow the engine to continue running for at least ten minutes. The smoke will begin to dissipate. Let the mower run until the smoke has gone.

NB During subsequent uses (for maybe a further 8-10 hours) the mower may smoke a little. Droplets of oil may come from the exhaust onto the deck as the oil is cleared from the cylinder. Simply wipe these away with a cloth.

For best practice, only to tip your mower BACKWARDS.

D: The engine pull cord may snatch back when pulled if the machine is not on a flat and firm surface, or the blade and/or its mounting boss are damaged or fitted insecurely.

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1. Ensure the machine is situated on a firm level surface (path, patio or short grass). Check the underside of the machine is clear from old lawn debris. If you have to tilt the mower, do this backwards only. First remove the grass catcher, remove the HT lead (spark plug cap), then lift the front wheels until the handles reach the ground at the rear.

2. If attempting to start the mower on the lawn, the grass beneath the cutter can slow its rotation, and even prevent the free rotation of the cutter, causing a “snatch back”. If the engine is cold, select a firm surface for starting the mower. If the engine is warm, always pull the mower back onto a pre-mown area where the grass is already short to prevent unnecessary jamming.

E: To check the blade, pull the cap off the sparkplug (for safety) and remove the grass catcher from the rear of the mower. Tilt the mower BACKWARDS so that the handle touches the ground.

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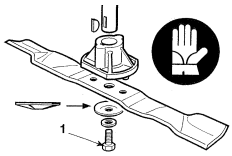
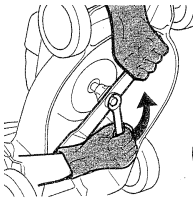
1. The cutter bar is retained by a central bolt. This should be tight (the thread is the normal anti-clockwise turn to tighten).



2. To either side of the central bolt there are two silver lugs protruding through the cutter bar. If these are missing, it indicates that the machine has come into contact with more than normal grass and has damaged the cutter mount (boss). This will have to be replaced. This type of repair would not normally be covered by warranty.



It is wise to mark the blade before removing it so that the blade can be replaced the correct way up.

8 Cutting and Collecting Grass, Vibration

QUICK TROUBLESHOOTING GUIDE:

Problem:	***Likely Cause:***	***Solution:***
Mower will not cut grass properly	• Technique is incorrect • Grass is too long or wet • Problem with the blade or blade mounting	• See A • See A • See B
Mower vibrates excessively	• Problem with the blade or blade mounting • The engine mounting is loose	• See B • See B
Mower will not collect grass properly	• Technique is incorrect • Grass is too long or wet • Build-up of grass clippings underneath or lack of air flow	• See A • See A • See C

A MOWER WILL NOT CUT GRASS PROPERLY

When cutting grass make sure you are using the machine on full throttle (if one is fitted). If collecting the grass ensure the mulching plug (if available) has been removed.

Do not cut wet grass.

Especially in the Spring when the grass may be long and lush, do not attempt to cut too much grass at any one time.

If the lawn is several inches in length then raise the height of cut and gradually reduce the lawn in stages to prevent blocking. It may also help to remove the grass catcher, cut the grass first on the highest setting, and work down to lower settings and collecting the grass.

If the grass is damp you can attempt to cut the lawn by raising the height of cut to allow a greater airflow, and reducing the lawn to the desired level in stages.

Check the height adjuster levers settings are the same on each wheel and that they are at a level suitable for the grass conditions.

Mulching Mowers: (*PLEASE NOTE, ALSO SEE* www.mulching.co.uk *for mulching tips and how to mow better with mulching mowers)*

The same advice above applies to mulching mowers. These are mowers that are not designed to collect grass – they recycle the grass clippings, and return natural nutrients to your lawn. NOTE: Combination mowers use a mulching plug so they can then be used also as a mulching mower.

Follow these simple steps for the best mulching results, and remember that to obtain the perfect cutting height you need to work down from the maximum height setting in steps until you reach your ideal height.

1. Remember the one third rule – never remove more than one third of the length of the blade of grass whenever you mow. This is good advice no matter what type of mower you use!

2. Cut a little:

   - Set the mowing height to about 1½ to 2 inches for most lawns, this will develop deeper root growth and crowd out weeds
   - The one third rule also implies that you should mow your grass before it is 3" high because a mulching cutter deck will have no problem chopping one inch of clippings into tiny particles and concealing them in the remaining standing grass
   - Leaving grass to reach 5-6" high would make it impossible for any mower to hide 3-4" of chopped clippings in just 2" of lawn.

3. Cut often:

   - Remove only one third of the grass length at each mowing. Try to mow weekly, especially in spring – cutting too much at once stresses the grass. Every two weeks will probably be often enough in the summer

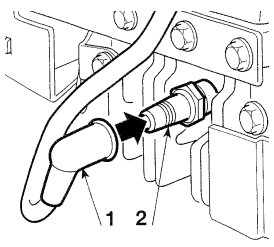
Leave grass about half an inch longer than you would normally if you were discharging or collecting the clippings.

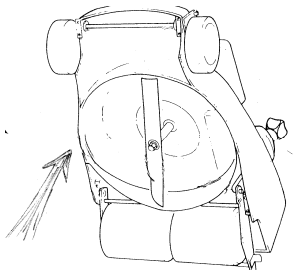
Keep your mower blades sharp. Mulching tends to dull blades faster than other methods of mowing. Sharpen them more often, if necessary.

Water the lawn after mulching, not before. Dry clippings disperse more easily than moist ones. Watering after the lawn has been mulched helps clippings settle better and speeds up decomposition.

B PROBLEMS WITH THE BLADE OR BLADE MOUNTING

Before checking the blade, REMOVE the H.T. lead (1 in the diagram). and ONLY TIP THE MOWER BACKWARDS.

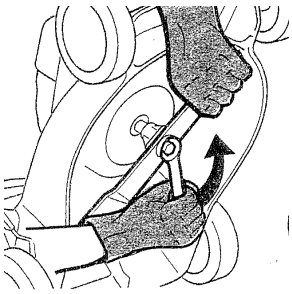




Excessive vibration can indicate damage to the blade, or blade mounting, or that the engine is loose

Check the blade bolt is tight.

WARNING: Mark the blade before attempting to remove it. This will enable you to replace it the correct way up.

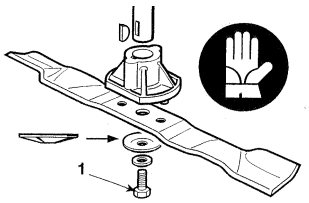


Check the blade mount. The mount has two lugs one either side of the blade securing bolt. If these have sheered then the blade can move.

If the blade mount has failed, a replacement can be purchased through your local Mountfield dealer.

Loosening the blade
(it is a normal thread, so turn anti-clockwise to remove the blade)

The Blade mount is only likely to fail because the blade has come into contact with an obstruction of some form. The blade mount is designed to fail in order to offer some degree of protection to the engine crankshaft.



Check the condition of the cutter blade - if badly worn or damaged, replace with a new one. If a new cutter blade has been fitted, check that it has been installed the correct way up (the wing tips at either end should bend upward into the mower chassis and not downward towards the ground).

Check that all 3 bolts securing the engine are in place and tight.

C BUILD-UP OF GRASS CLIPPINGS UNDERNEATH or LACK OF AIRFLOW

When cutting grass make sure you are using the machine on full throttle (if one is fitted).

Raising the height of cut increases airflow and assists grass collection. This is especially so if the grass is damp.

Reducing the height of cut in stages to achieve the desired level is a sound strategy.

1. Ensure there is no build up of grass underneath the casing. **Before checking the underside, make sure to remove the HT Cap (sparkplug cap).** Only access the under side of the machine by removing the grass catcher then lifting the machine from the front until the handles touch the ground at the rear).
2. Check the grass catcher allows air to pass through it. If heavily soiled, wash it in warm soapy water to clear old deposits of grass juices and debris. A good airflow is essential for efficient grass collection.
3. If grass is very long, remove the grass catcher, and work with the deflector plate (stone guard) in position. Clippings can be collected after a few hours drying by simply going over the lawn again with the grass catcher fitted, and the wheels set slightly higher.
4. Should the machine become blocked with grass when using it, **stop the mower and remove the H.T. lead** (spark plug cap). Remove the grass box, insert your hand through the rear aperture and clean away any build up of grass clippings. **DO NOT TIP THE MOWER FORWARDS, OR SIDEWAYS, OR UPSIDE DOWN.**
5. Walk around to the front of the mower and raise the front wheels in the air until the handles reach the ground at the rear. Clean away any grass clippings which have accumulated on the underside.
6. Once cleaned, lower the machine, re-fit the HT lead (spark plug cap) and restart engine.

9 Loss of Drive on Self-Propelled Mowers

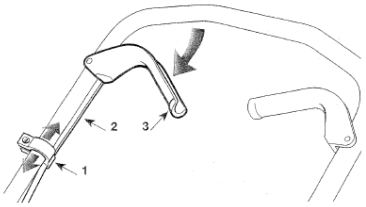
QUICK TROUBLESHOOTING GUIDE:

Problem:	*Likely Cause:*	*Solution:*
Clutch cable very slack and mower does not drive	• Cable is detached or broken • Cable tension is incorrect	• See A • See A
Back wheels turn when raised from ground but mower does not drive	• Clutch cable has stretched • Cable tension is incorrect	• See A • See A
Clutch cable may be slack and mower does not drive	• Belt is broken or has come off the drive pulleys • Cable may be broken or detached	• See B • See a service dealer

PLEASE NOTE: This is a generic guide and gives basic instructions for a wide range of mowers and slight variations may arise. If in doubt, please contact the Helpline service on 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm).

A ADJUSTING THE TENSION ON THE CLUTCH CABLE

FOR MOWERS WITH THE CLUTCH ON THE RIGHT HAND SIDE OF THE HANDLE:



a) Check the clutch cable runs up the right hand side of the main handle (right hand side viewed from behind the mower) and through the tension bracket (shown as 1 in the diagram above). If the cable is not in this bracket, insert it and follow the instructions in b) below to adjust the tension.

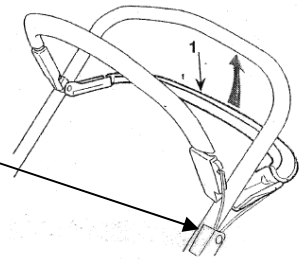
b) Check the tensioning bracket (shown as 1 in the diagram above) because this can have moved up the handle or the cable may have stretched a little with use. Slacken the screw in the bracket, slide the bracket DOWN the handle to take up spare slack in the cable, and tighten the screw. NOTE: The cable should have about ½" of play on it.

c) If the above steps do not return the tension to the cable and restore the drive, the cause of the problem may be the belt has come off the

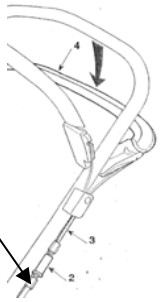
drive pulleys (see Section 2) or the clutch cable has broken or become detached (see a service dealer).

Find your local ServiceLink centre at www.servicelink.org.uk

FOR MOWERS WITH THE CLUTCH BAR RUNNING ACROSS THE HANDLE:



a) Check the clutch cable runs up the left hand side of the main handle through the anchoring bracket on the handle. If the cable is not in this bracket, insert it and secure the bracket to the handle, then follow the instructions in b) below to adjust the tension.



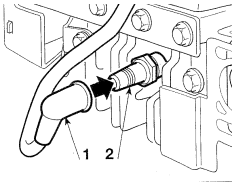
b) The cable may have stretched a little with use. Slacken the bottom nut on the adjusting barrel and then tighten the top nut on the adjusting barrel to take up un-required slack in the cable. NOTE: The cable should have about ½" of play on it.

c) If the above steps do not return the tension to the cable and restore the drive, the cause of the problem may be the belt has come off the drive pulleys (see Section B) or the clutch cable has broken or become detached (see a service dealer).

B REPLACING THE BELT

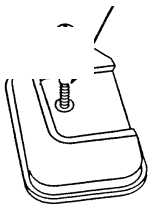
To replace the belt on these machines, it will involve tipping the machine to gain access to the belt. You will need to observe certain general and safety precautions prior to undertaking this task.

Chose an appropriate firm surface to work on such as a workbench - not standing on a high quality patio or lawn (these could be stained or damaged by machine fluids).



WARNING: Make sure you have disconnected the HT lead from the spark plug (it is a simple push fit) before you undertake ANY of the work below.

The air filter cover and filter element/sponge will need also to be removed. This is located above the fuel tank on the front right hand side (viewed from the back), and secured with a single flat headed screw from above. The engine cover does NOT need to removed to do this.



Now follow the sequence of steps below:

1. Remove the grassbox

2. Check you have already removed the spark plug cap (for safety reasons) and the air filter (to avoid potential contamination)

3. Without tipping the mower forwards or sideways, lift the mower up onto a workbench on all 4 wheels, and position the back wheels close to the edge of the workbench

4. Raise the stone guard flap, tip the mower BACKWARDS with the handle hanging over the edge of the bench – it will stand upright like this

5. Mark the blade so that after removing it you can replace it the correct way

6. Unscrew the blade (normal thread so turn the spanner anti-clockwise to unfasten)

7. Remove the belt guard plate – this is the protective plate through which the blade shaft protrudes……it is between the blade and the deck of the mower (it may be held on by a single screw, 2 screws and a nut, or 4 screws)

8. If the belt is broken, a replacement must be purchased from the service dealer. Position the belt around the pulley on the blade shaft

9. On the back axle there is a black/grey box (the transmission unit) and on the uppermost face of this is a pulley – wind the belt onto this

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pulley as if winding a chain onto a bicycle wheel (it may appear that this pulley is at an angle, but the tension of the belt will straighten this)

10. Replace the belt guard plate and re-attach the blade the correct way up

11. Carefully lift the mower down onto the ground without tipping it forwards or sideways and replace the spark plug cap and air filter.

NOTE: If the belt repeatedly comes adrift, this is normally a sign that either grass is finding its way into the belt compartment, or the belt is worn or damaged and should be replaced. Whenever ordering spare parts ALWAYS quote the model number of your machine to the dealer.

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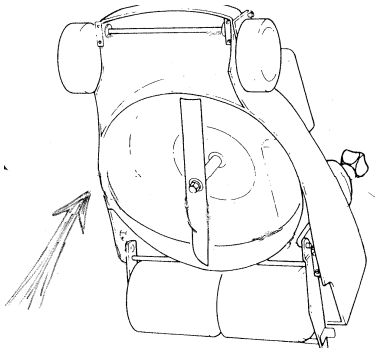
10 Transportation and Handling

The correct way to gain access underneath the mower:

Before checking the underside, make sure to remove the HT Cap (sparkplug cap).

ALWAYS lift from the front of the mower so that the front wheels are raised, and the handles touch the ground at the rear. Do not tip the mower sideways or forward (like one might lift a wheelbarrow) as this can flood the air filter, exhaust and even the cylinder with engine fluids.



It may be helpful to place a weight on the handle to maintain the mower in this position when working beneath the deck.

Whenever the machine is to be handled, raised onto a workbench or transported, first remove the HT Cap (sparkplug cap):

1. Wearing strong gloves and taking account of the weight and its distribution, grasp the machine at the points that offer a safe grip.
2. Use an appropriate number of people for the weight of the machine and the characteristics of the vehicle or the place where it has to be placed or collected.
3. When lifting the machine to and from a vehicle or onto a workbench, take care to keep it level. **DO NOT TIP IT.**
4. The handles may be folded to ease storage and transportation. ***It is important to take care not to trap the operating cables when collapsing the handles.***

11 Maintenance and Storage

Regular and careful maintenance is essential to preserve original performance and safety levels of the engine. Always store the mower in a dry place. Please also refer to the Engine Routine Maintenance information for additional help.

Key maintenance and storage information (all engines):

1. **Keep all nuts, bolts and screws tight** to ensure the equipment is in safe working condition. **Regular routine maintenance** is essential for safety and performance.
2. **Never store the mower** with fuel in the tank inside a building where vapour may reach a flame or a spark or a source of extreme heat.
3. **Allow the engine to cool** before storing in an enclosed space.
4. **To reduce the fire hazard**, keep the engine, exhaust silencer, battery compartment (if fitted) and fuel storage area free of grass, leaves, or excessive grease. Do not leave containers of grass cuttings in rooms.
5. **Check the stone guard and grass collector** frequently for wear and deterioration.
6. **If the fuel tank has to be drained**, this should be done outside and when the engine is cool.
7. **Wear strong work gloves** while removing or assembling the blade.
8. **Keep the blade balanced during sharpening.** All operations on the blade (dismantling, sharpening, balancing, remounting and/or replacing) require a certain familiarity and (in some cases) special tools. For safety reasons these tasks are best carried out by one of our authorised service dealers.
9. **For safety reasons, DO NOT use the equipment with worn or damaged parts.** Parts are to be replaced and not repaired. Use genuine spare parts only. Parts that are not of the same quality can damage the equipment and be dangerous for your safety.

If the lawnmower is to be stored for more than 30 days (e.g. over the winter period), drain the fuel from the tank or allow the engine to run until it runs out of fuel. This should always be done outdoors. To empty the fuel from the engine, see section 4 Starting the engine, sub-section B.

12 Guarantee, Spare Parts, Repairs

Congratulations on the purchase of your lawnmower. This product is guaranteed against faulty parts or manufacture for domestic use as shown below:

MOWER MODEL:	GUARANTEE PERIOD:
420 HP, 460 HP, 460 PD, 460 R PD PWR 400, SP530, HP470, SP470	2 years from the date of purchase
T4204, T4204S, T4604RS, T4604S T5105S, GL480SP	3 years from the date of purchase (subject to service at the end of year 2)

If the machine is used commercially the guarantee period is 90 days from the date of purchase.

If your product fails due to a defect in materials or workmanship during the guarantee period it will be repaired or replaced at no charge provided all repairs are carried out by an authorised service dealer. Delivery and collection of the machine is your responsibility, and not covered by this guarantee. To locate your nearest service dealer go to www.servicelink.org.uk or telephone the Helpline on 0845 600 2912.

This guarantee is not transferable. Proof of purchase will be required in the event of a claim. Warranty is subject to the mower receiving annual service where there is a warranty for 2 or more years.

Normal wear-and-tear and the routine replacement of parts which are subject to normal wear-and-tear are not covered by this guarantee. Likewise, any defect which is the result of misuse, alteration, improper assembly or adjustment, neglect or accident is not covered by this guarantee.

This guarantee is in addition to, and does not detract from your original contractual rights under statute or common law.

Spare Parts

We do not supply spares parts direct for general use. We do, however, have a comprehensive ServiceLink network that can happily supply replacement parts for your mower. Our ServiceLink centres can also undertake any remedial work requested (work that is not covered by the guarantee will be chargeable). Your local ServiceLink centre can be found at www.servicelink.org.uk

Our Helpline service, telephone 0845 600 2912 (Monday to Saturday 9am – 5pm, and Sunday 10am – 4pm).

Repairs

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Your local ServiceLink centre can be found at www.servicelink.org.uk